

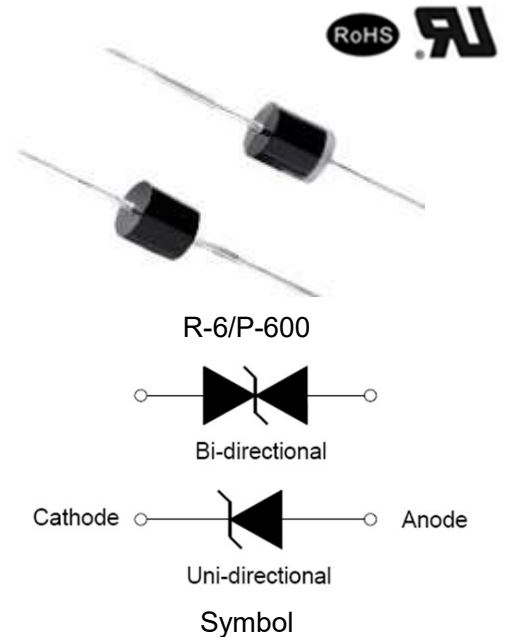


P8S Series 8000W Transient Voltage Suppressor

Rev.2.4

DESCRIPTION:

The P8S series of high current uni/bi-directional transient suppressors are designed for A.C. line protection and high power DC bus clamping applications. These devices offer uni/bi-directional port protection from 20 volts to 43 volts. They provide a clamping voltage lower than the avalanche voltage. Therefore, any voltage rise due to increased current conduction is contained to a minimum, providing the best possible protection level. They can also be connected in series and/or parallel to create very high capacity protection solutions.



FEATURES:

- ✧ Low incremental surge resistance.
- ✧ Excellent clamping capability.
- ✧ Typical I_R less than $5\mu A$.
- ✧ Color band denoted cathode except bidirectional.
- ✧ High temperature wave soldering: $265^\circ C/10s$ at terminals.
- ✧ Plastic package has under writers laboratory flammability 94V-0.
- ✧ 8000W peak pulse power capability at 10/1000 μs waveform.
- ✧ Meets MSL level 1, per J-STD-020, LF maximum peak of $260^\circ C$.
- ✧ Terminal: solder plated, solderable per J-STD-002.
- ✧ Fast response time: typically less than 1.0ps from 0V to V_{BR} min.
- ✧ UL 497B item recognized. (File No.:E480698).
- ✧ IEC61000-4-2 (ESD) $\pm 30kV$ (air), $\pm 30kV$ (contact).

ABSOLUTE MAXIMUM RATINGS ($T_A=25^\circ C$, RH=45%-75%, unless otherwise noted)

Parameter	Symbol	Value	Unit
Operating junction and storage temperature range	T_J, T_{STG}	-55 to +175	$^\circ C$
Peak pulse power dissipation at 10/1000 μs waveform	P_{PP}	8000	W
Steady state power dissipation at $T_L=75^\circ C$	$P_{M(AV)}$	8	W
Maximum instantaneous forward voltage at 100A for unidirectional	V_F	5.0	V
Peak forward surge current, 8.3ms single half sine-wave for unidirectional only	I_{FSM}	400	A

ABSOLUTE MAXIMUM RATINGS ($T_A=25^{\circ}\text{C}$, RH=45%-75%, unless otherwise noted, continued)

Parameter	Symbol	Value	Unit
Typical thermal resistance junction to lead	$R_{\theta JL}$	8.0	$^{\circ}\text{C}/\text{W}$
Typical thermal resistance junction to ambient	$R_{\theta JA}$	40	$^{\circ}\text{C}/\text{W}$

ELECTRICAL CHARACTERISTICS ($T_A=25^{\circ}\text{C}$)

Part Number		V_R	$I_R@V_R$	$V_{BR}@I_T$		I_T	$V_C@I_{PP}$	$I_{PP}^{\text{①}}$
Uni-Polar	Bi-Polar	V	max(μA)	min(V)	max(V)	mA	max(V)	A
P8S20A	P8S20CA	20	5	22.2	24.5	5	32.4	246.9
P8S22A	P8S22CA	22	5	24.4	26.9	5	35.5	225.3
P8S24A	P8S24CA	24	5	26.7	29.5	5	38.9	205.6
P8S26A	P8S26CA	26	5	28.9	31.9	5	42.1	190.1
P8S28A	P8S28CA	28	5	31.1	34.4	5	45.4	176.2
P8S30A	P8S30CA	30	5	33.3	36.8	5	48.4	165.3
P8S33A	P8S33CA	33	5	36.7	40.6	5	53.3	150.1
P8S36A	P8S36CA	36	5	40.0	44.2	5	58.1	137.7
P8S40A	P8S40CA	40	5	44.4	49.1	5	64.5	124.1
P8S43A	P8S43CA	43	5	47.8	52.8	5	69.4	115.3

① Surge waveform: 10/1000 μs

V_R : Stand-off voltage -- Maximum voltage that can be applied

V_{BR} : Breakdown voltage

V_C : Clamping voltage -- Peak voltage measured across the suppressor at a specified I_{PP}

I_R : Reverse leakage current

RATINGS AND V-I CHARACTERISTICS CURVES (T_A=25°C, unless otherwise noted)

FIG.1:V- I curve characteristics (Uni-directional)

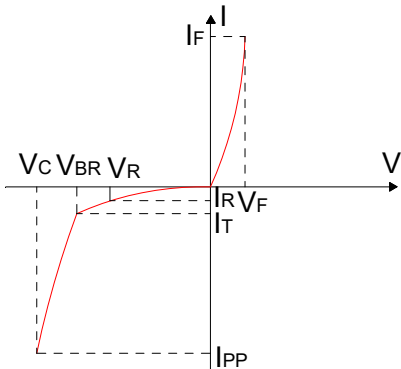


FIG.2:V- I curve characteristics (Bi-directional)

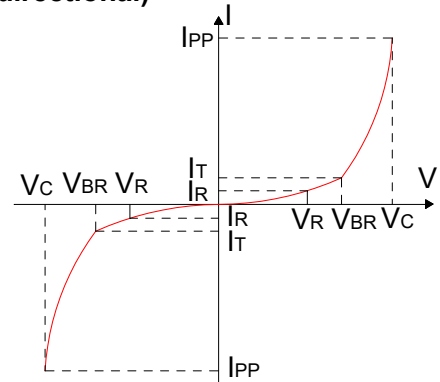


FIG.3: Pulse waveform

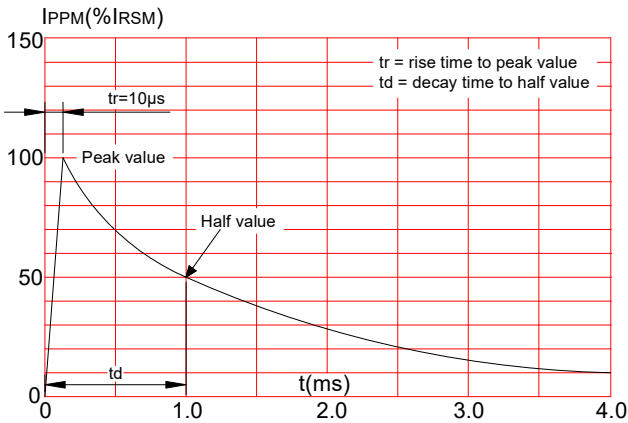
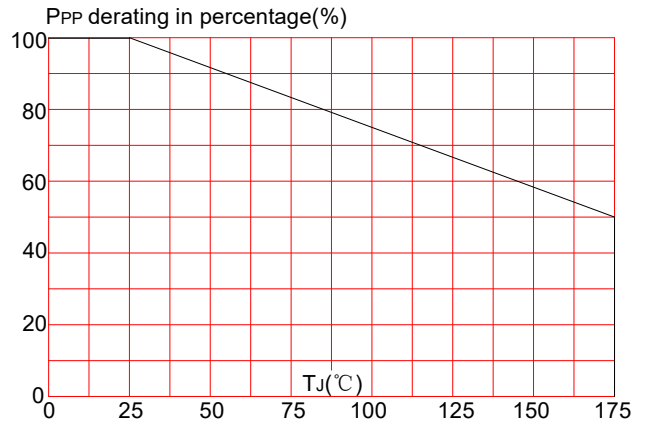
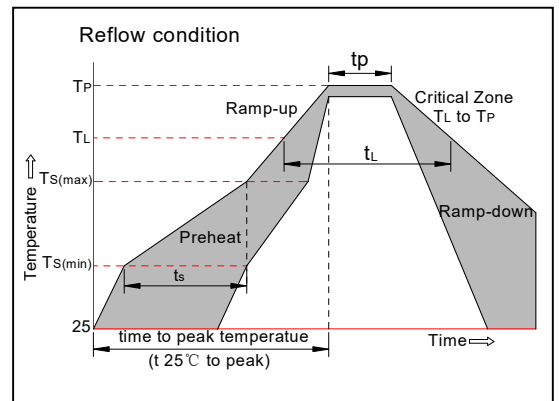


FIG.4: Pulse derating curve



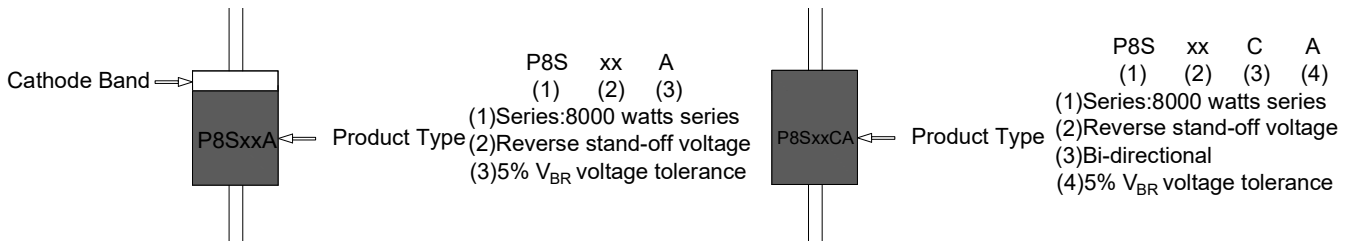
SOLDERING PARAMETERS

Reflow Condition		Pb-Free assembly (see figure at right)
Pre Heat	-Temperature Min (T _{s(min)})	+150°C
	-Temperature Max(T _{s(max)})	+200°C
	-Time (Min to Max) (t _s)	60-180 secs.
Average ramp up rate (Liquidus Temp (T _L)to peak)		3°C/sec. Max
T _{s(max)} to T _L - Ramp-up Rate		3°C/sec. Max
Reflow	-Temperature(T _L)(Liquidus)	+217°C
	-Temperature(t _L)	60-150 secs.
Peak Temp (T _p)		+260(+0/-5)°C
Time within 5°C of actual Peak Temp (t _p)		20-40secs.
Ramp-down Rate		6°C/sec. Max
Time 25°C to Peak Temp (T _p)		8 min. Max
Do not exceed		+260°C



Flow/Wave Soldering(Solder Dipping)	
Peak temperature	265°C
Dipping time	10 sec.
Soldering	1 time

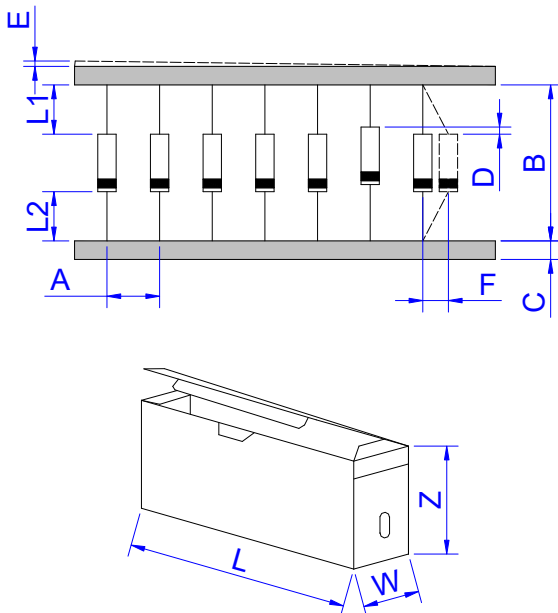
MARKING & ORDERING INFORMATION



PACKAGE MECHANICAL DATA

Ref.	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	25.40	-	1.000	-
B	8.60	9.40	0.339	0.370
C	1.20	1.40	0.047	0.055
D	8.60	9.10	0.339	0.358

TAPE AND BOX SPECIFICATION-R-6/P-600



Ref.	Dimensions	
	Millimeters	Inches
A	10.0±0.5	0.394±0.020
B	53.0±1.5	2.087±0.059
C	6.0±0.5	0.236±0.020
D	1.2(MAX)	0.047(MAX)
E	0.8(MAX)	0.031(MAX)
F	1.5(MAX)	0.059(MAX)
L1-L2	1.0(MAX)	0.039(MAX)
W	80±5.0	3.150±0.197
L	250±5.0	9.843±0.197
Z	115±5.0	4.528±0.197

PART No.	UNIT WEIGHT (g/PCS) typ.	PER BOX (PCS)	PER CARTON (PCS)	DESCRIPTION
P8SxxA/CA	2.5	300	3,000	Box


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